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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/607,921	06/30/2000	Hiroaki Yasuda	Q58681	9683

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EXAMINER	
LU, TOM Y	
ART UNIT	**PAPER NUMBER**
2621	

DATE MAILED: 02/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/607,921	YASUDA, HIROAKI	
	Examiner	Art Unit	
	Tom Y Lu	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8-12 and 15-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8-12 and 15-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The Request for Continued Examination filed on October 14, 2004 has been entered.

2. Upon entry of the Request for Continued Examination, the amendment filed on August 11, 2004 has been entered.

3. Claims 7 and 13-14 have been cancelled.

4. Claims 1, 4, 8 and 23 have been amended.

5. Claims 1-6, 8-12 and 15-26 are pending.

Response to Arguments

6. Applicant's arguments filed on 8/11/2004 have been fully considered but they are not persuasive.

The Honda reference:

Applicant argues Honda does not teach the added limitation of "prior to the operation-processed image signal being obtained from the predetermined operation processing". The examiner states herein although Honda does not explicitly teach at least one original image signal can be transferred to an image output device prior to the operation-processed image signal being obtained from the predetermined operation processing, it would have been an obvious design choice to modify Honda's system, which displays the original images and the processed image, mixture signal Sm, at the same time by activating the switch So as shown in figure 1, to allow the original images displayed before the processed image by removing the switch, since applicant has not disclosed that having original images displayed before the completion of the predetermined process would post any significant advantages nor would solve any stated

problems, and it appears that displaying the original images and processed image at the same time would perform equally well for the viewers, who wish to see the original images and processed image displayed at the same time.

With regard to dependent claims 12 and 15, applicant asserts the obviousness of substituting the CRT display as taught in Honda with a liquid crystal display is not apparent. The examiner explains although Honda does not explicitly teach the display can be a Liquid Crystal Display, it would be obvious to a person of ordinary skill in the art to substitute the CRT display in Honda with a LCD display since it is understood in the art that a LCD display saves more space than a CRT display, and such display unit in Honda is a stand-alone unit, which can be substituted without affecting other components, and Honda at column 10, lines 46-51, teaches modification and changes are welcomed to improve his system.

7. Applicant's arguments, see Remarks, pages 10-11, filed on 8/11/2004, with respect to the rejection(s)of claim(s) 22-23 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Ito et al (EP 0677780 A2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-6, 8-9, 11-12, 15-21 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda et al (U.S. Patent No. 5,233,989).

a. Referring to Claim 1, Honda discloses feeding a plurality of original image signals (optical images at column 4, line 14) representing radiation image information (X-ray images, column 4, line 13), which have been fed out from an image signal input apparatus (X-ray tube, column 4, line 10), into an operation processing device (a combination of blocks 8-14 shown in figure 1 corresponds to the claimed "operation processing device"); performing predetermined operation processing on the plurality of the received original image signals in the operation processing device to obtain an operation-processed image signal (mixture signal Sm at column 4, line 57 is the claimed "an operation-processed image signal", also see figure 1); transferring at least one original image signal, which is among the plurality of the original image signals, to an image output device (original signal Xi as shown in figure 1 is transmitted to display unit 16); performing image outputting with the image output device and in accordance with the one original image signal having been transferred (displaying on a display unit is the claimed "performing image outputting"); after the operation-processed image signal has been obtained from the predetermined operation processing, feeding the operation-processed image signal into the image output device (mixture signal Sm is obtained after blocks 8-14); and performing image outputting with the image output device and in accordance with the received operation-processed image signal (mixture signal Sm is transmitted to the display unit 16 for displaying, see figure 1). Although Honda does not explicitly teach at least one original image signal can be transferred to an image output device prior to the operation-

processed image signal being obtained from the predetermined operation processing, it would have been an obvious design choice to modify Honda's system, which displays the original images and the processed image, mixture signal Sm, at the same time by activating the switch So as shown in figure 1, to allow the original images displayed before the processed image by removing the switch, since applicant has not disclosed that having original images displayed before the completion of the predetermined process would post any significant advantages nor would solve any stated problems, and it appears that displaying the original images and processed image at the same time would perform equally well for the viewers, who wish to see the original images and processed image displayed at the same time.

b. Referring to Claim 2, Honda discloses where the operation processing device is located on the side of the image output device (see figure 1, processing blocks 8-14 are located on the side of display unit 16); the plurality of the original image signals are transferred to the operation processing device; and the operation processing is performed on the plurality of the transferred original image signals in the operation processing device (plurality of original images are processed in blocks 8-14).

c. Referring to Claim 3, Honda discloses where the operation processing device is located on the side of the image signal input apparatus (processing blocks 8-14 are located on the side of X-ray tube 1); the operation-processed image signal, which has been obtained from the operation processing device, is transferred to

the image output device; and the image outputting is performed with the image output device and in accordance with the operation-processed image signal having transferred (mixture signal Sm is transmitted and displayed on the display unit 16).

d. With regard to Claim 4, all limitations are addressed in Claim 1.

e. With regard to Claim 5, all limitations are addressed in Claim 2

f. With regard to Claim 6, all limitations are addressed in Claim 3.

g. With regard to Claim 8, all limitations are addressed in Claim 1.

h. Referring to Claim 9, Honda discloses wherein the transfer device comprises a network (the link between blocks 5 to 6, 6 to 16 are the claimed transfer device, which connects the TV camera 3 all the way to the display unit 16, such connection is to be considered as a network).

i. Referring to Claim 11, Honda discloses wherein the image signal input apparatus comprises a CR apparatus (X-ray tube 1 is a CR apparatus).

j. Referring to Claim 12, although Honda does not explicitly teach the display can be a Liquid Crystal Display, it would be obvious to a person of ordinary skill in the art to substitute the CRT display in Honda with a LCD display since it is understood in the art that a LCD display saves more space than a CRT display, and such display unit in Honda is a stand-alone unit, which can be substituted without affecting other components, and Honda at column 10, lines 46-51, teaches modification and changes are welcomed to improve his system.

k. With regard to Claim 15, see explanation in Claim 12.

l. With regard to Claim 16, see explanation in Claim 9.

m. With regard to Claim 17, see explanation in Claim 9.

n. With regard to Claim 18, see explanation in Claim 9.

o. With regard to Claim 19, see explanation in Claim 1.

p. With regard to Claim 20, see explanation in Claim 19.

q. With regard to Claim 21 see explanation in Claim 20.

r. Referring to Claim 24, Honda teaches displaying original image and subtraction image together on the display unit 16.

s. With regard to Claim 25, see explanation in Claim 24.

t. With regard to Claim 26, see explanation in Claim 24.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Honda as applied to claim 4 above, and further in view of Luo et al (U.S. Patent No. 5,901,240). Honda discloses using X-ray tube 1 as shown in figure 1. However, Honda does not teach using a CT scanner. Luo at column 5, line 14, teaches using a CT scanner to obtain digitized X-ray images. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a CT scanner. One of ordinary skill in the art would have been motivated to do this because a CT scanner is just another means of acquiring radiation images. In addition, Luo at column 5, lines 13-15 teaches using a diagnostic scanner like CT produces an electronic x-ray image which is digitized, which eliminates the A/D converter 5 in Honda's system.

10. Claims 1 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al (EP 0677780 A2, Publication date: 10/18/1995) in view of Honda et al (U.S. Patent No. 5,233,989)

a. Referring to Claim 1, Ito discloses feeding a plurality of original image signals representing radiation image information (image signals S1 and S2, figure 32 or 33), which have been fed out from an image signal input apparatus (see figure 1), into an operation processing device (image processing means in figure 32 or 33); performing predetermined operation processing on the plurality of the received original image signals in the operation processing device to obtain an operation processed image (Ssub or Sadd as seen in figure 32 or 33); after the operation processed image has been obtained from the predetermined operation processing, feeding the operation processed image signal into the image output device (image reproducing means in figure 32 or 33), performing image outputting with the image output device and in accordance with the received operation-processed image signal. However, Ito does not explicitly teach transferring at least one original image signal, which is among the plurality of the original image signals, to an image output device, prior to the operation-processed image signal being obtained from the predetermined operation processing; and performing image outputting with the image output device and in accordance with the one original image signal having been transferred. Honda teaches such deficiencies in Ito as explained in Paragraph 8.a above. At the time the invention was made, one of ordinary skilled in the art would have been motivated to display input image signals S1 and S2 in Ito with the processed image signal, Sadd, in a display unit because it would be reasonable to assume that a person of ordinary skilled in the

art would like to view the original input images and the processed image in a display unit at the same time for comparison.

b. Ito in figures 2 and 3 shows S1 is obtained from upper surface side of a simulable phosphor sheet and S2 is the lower surface side. And the image S1 and S2 are added to obtained Sadd image as disclosed at page 34.

c. Referring to Claim 23, Ito at page 34, lines 1-42, teaches performing unsharp mask operation in image signal S1 and S2 to obtained unsharp mask sign Sus1 and Sus2.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ito et al, U.S. Patent No. 6,016,356, see figures 32-33.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom Y Lu whose telephone number is (703) 306-4057. The examiner can normally be reached on 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H Boudreau can be reached on (703) 305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tom Y. Lu

PRIMARY EXAMINER